



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/511,901

10/20/2004

Heiner Bayha

3826 1029US

4794

29894

7590

10/05/2006

DREISS, FUHLENDORF, STEIMLE & BECKER
POSTFACH 10 37 62
D-70032 STUTTGART,
GERMANY

EXAMINER

BAKER, DAVID S

ART UNIT

PAPER NUMBER

2884

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/511,901 | Applicant(s) BAYHA ET AL. | |
| | Examiner David S. Baker | Art Unit 2884 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-19, 22-24, 26-40 and 42-48 is/are rejected.
- 7) ☒ Claim(s) 20-21, 25, 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20/10/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments filed on 13 September 2005 have been accepted and entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17, 23, 27-28, and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Reich (US Patent #5,254,853 A).

Regarding claims 17 and 28, Reich discloses sensor for detecting media comprising an apparatus and method of using a first transmitter (IR LED 124a, figure 3) for transmitting first signals along a first transmission axis (beam 122a, figure 3) and towards a medium (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4); a second transmitter (IR LED 124b) for transmitting second signals along a second transmission axis (beam 122b, figure 3) and towards the medium (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4); a receiver (photodiode 116, figure 3) for receiving said first and said second signals subsequent to interaction with the medium (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4), said receiver receiving said first and said second signals along a receiver axis (field of view 128, figure 3), wherein said receiver axis intersects said first transmission axis at a first point of intersection and said receiver axis intersects said second transmission axis at a

Art Unit: 2884

second point of intersection (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4); and an evaluation unit (detector circuit 154, figure 3) communicating with said receiver to detect the medium in response to reception of said first and said second signals (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4 and 21-67, column 6 lines 1-23).

Regarding claims 23 and 31, Reich discloses that the first and second transmitted are infrared transmitters and the receiver is an infrared receiver (column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4).

Regarding claim 27 and 32, Reich discloses that the sensor is adapted to generate a signal for controlling a system to detect a medium (column 5 lines 21-67, column 6 lines 1-23) and issuing a signal when the medium is detected (column 5 lines 21-67, column 6 lines 1-23).

Regarding claim 30, Reich discloses time alternating the first and second signals (column 5 lines 26-47).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 2884

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 18-19, 22, and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Reich (US Patent #5,254,853 A) in view of Bateman (US Patent #3,758,211 A).

Regarding claim 18, Reich discloses an optics (lens 118, figure 3) to focus said first and second signals emanating from said first transmitter into a first beam and a second beam traveling along said first transmission axis (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4) and said second transmission axis (figure 3, column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4). Reich does not disclose expressly a third optics to select portions of said first and said second signals which travel toward said receiver along said receiver axis and to pass said selected portions on to said receiver. Bateman discloses the use of a filter for filtering the received light before it is collected by the detector (column 4 lines 13-27). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ a filter for the detector so that only desired wavelength ranges may be detected resulting in more accurate data by filtering out background light.

Regarding claim 19, Reich discloses that the first and second beams are each substantially cylindrical and linear (figure 3).

Regarding claims 22 and 29, Reich discloses all the claimed limitations but does not disclose expressly comparing the initial intensity of a transmitted signal with the

received intensity of the signal. Bateman discloses determining the density of a medium by comparing the initial intensity of a transmitted signal with the received intensity of the signal (column 3 lines 26-45). At the time the invention was made, it would have been obvious to compare the transmitted intensities of the first and second signals with the received intensities of the first and second signals. The motivation for doing so would have been that it is well known in the art the proportion of light scattered from a fog-like medium is substantially proportional to the fog-like medium density (column 3 lines 26-45).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reich (US Patent #5,254,853 A) and Bateman (US Patent #3,758,211 A), and further in view of Stam (US Patent #6,495,815 B1).

Regarding claim 24, Reich and Bateman disclose all the limitation of the claim except for means to mount the sensor to a window or windshield. Stam discloses a sensor for detecting fog-like media that is mounted to a windshield via the rear-view mirror (figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to mount the sensor on a windshield. The motivation for doing so would have been to decrease the difficulty in reaching the sensor should repairs need to be made.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reich (US Patent #5,254,853 A) in view of Stam (US Patent Application Publication #2002/0156559 A1).

Regarding claim 26, Reich discloses all the claimed limitations but does not disclose expressly mounting the transmitters or receiver on a circuit board. Stam

Art Unit: 2884

discloses a sensor for detecting fog-like medium where the receiver is mounted to a circuit board (paragraphs 0033-0034). At the time the invention was made, it would have been obvious to mount the detection system on a circuit board. The motivation would have been to decrease the need for wiring and other external electronics making the system more modular.

9. Claim 33-38 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman (US Patent #3,758,211 A) in view of Wittmer (German Patent #DE 4326170).

Regarding claim 33 and 44, Bateman discloses a sensor for detecting a fog-like media comprising an apparatus and method of using a transmitter (light projector 4, figure 1) for transmitting signals along a transmission axis and towards the fog-like medium (column 2 lines 29-68, column 3 lines 1-7); a first receiver (detector 6, figure 1) for receiving said signals subsequent to interaction with the fog-like medium (column 2 lines 29-68, column 3 lines 1-7), said first receiver receiving said signals along a first receiver axis (path 7, figure 1), wherein said first receiver axis intersects said transmission axis at a first point of intersection (column 2 lines 29-68, column 3 lines 1-7); a second receiver (detector 6', figure 1) for receiving said signals subsequent to interaction with the fog-like medium (column 2 lines 29-68, column 3 lines 1-7), said second receiver receiving said signals along a second receiver axis (path 7', figure 1), wherein said second receiver axis intersects said transmission axis at a second point of intersection (column 2 lines 29-68, column 3 lines 1-7). Bateman does not expressly disclose an evaluation unit. Wittmer discloses an evaluation unit (evaluation circuit 28, figure 1) communicating with said first and said second receivers to detect the medium in

response to reception of said signals in said first and said second receivers (see Abstract).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize an evaluation unit in conjunction with the detectors to increase the amount of data that may be processed.

Regarding claim 34, Wittmer discloses first optics (optical element 16, figure 1) to focus said signals emanating from said transmitter (radiation source 15, figure 1) into a first beam traveling along said transmission axis, a second optics (optical element 16, figure 1) to select first portions of said signals which travel toward said first receiver along said first receiver axis and to pass said selected first portions on to said first receiver (detector 23.1, figure 1), and a third optics (optical element 16, figure 1) to select second portions of said signals which travel towards said second receiver along said second receiver axis and to pass said selected second portions on to said second receiver (detector 23.2, figure 1).

Regarding claim 35, Bateman discloses that the beams are substantially cylindrical (figure 1).

Regarding claim 36, Bateman discloses that the first and second receiver axes do not intersect (figure 1).

Regarding claim 37, Bateman discloses that the first and second receiver axes are substantially parallel to each other (figure 1).

Regarding claim 38 and 45, Bateman discloses determining the density of a medium by comparing the initial intensity of a transmitted signal with the received intensity of the signal (column 3 lines 26-45).

Regarding claim 43, Wittmer discloses that the sensor is adapted to generate a signal for controlling the detection system (figure 1, see Abstract).

10. Claim 39 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman (US Patent #3,758,211 A) and Wittmer (German Patent #DE 4326170), and further in view of Reich (US Patent #5,254,853 A).

Regarding claim 39 and 47, Bateman and Wittmer disclose all of the claimed limitations but do not disclose expressly that the transmitter and receivers are of the infrared variety. Reich discloses a fog-like medium detection system that uses infrared transmitters and receivers (column 3 lines 60-68, column 4 lines 1-68, column 5 lines 1-4). At the time the invention was made, it would have been obvious to use infrared transmitters and receivers. The motivation for doing so would have been that IR radiation would be invisible to the human eye and would therefore increase the safety of use by not creating light that would distract the drive of a vehicle.

Regarding claims 46 and 48, Reich discloses time alternating the first and second signals (column 5 lines 26-47) and issuing a signal when the medium is detected (column 5 lines 21-67, column 6 lines 1-23).

11. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman (US Patent #3,758,211 A) and Wittmer (German Patent #DE 4326170), and further in view of Stam (US Patent #6,495,815 B1).

Regarding claim 40, Bateman and Wittmer disclose all the limitation of the claim except for means to mount the sensor to a window or windshield. Stam discloses a sensor for detecting fog-like media that is mounted to a windshield via the rear-view

Art Unit: 2884

mirror (figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to mount the sensor on a windshield. The motivation for doing so would have been to decrease the difficulty in reaching the sensor should repairs need to be made.

12. Claim 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman (US Patent #3,758,211 A) and Wittmer (German Patent #DE 4326170), and further in view of Stam (US Patent Application Publication #2002/0156559 A1).

Regarding claim 42, Bateman and Wittmer discloses all the claimed limitations but does not disclose expressly mounting the transmitters or receiver on a circuit board. Stam discloses a sensor for detecting fog-like medium where the receiver is mounted to a circuit board (paragraphs 0033-0034). At the time the invention was made, it would have been obvious to mount the detection system on a circuit board. The motivation would have been to decrease the need for wiring and other external electronics making the system more modular.

Allowable Subject Matter

13. Claims 20-21, 25, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 20-21, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a sensor for detecting a fog-like medium: namely, wherein the first and second transmission axes do not intersect.

Regarding claims 25 and 41, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a sensor for detecting a fog-like medium: namely, that the optical components of the sensor are optically coupled to the windshield of a vehicle. Prior art such as King (US Patent #6,422,062 B1) teach away from optically coupling the optical elements of the sensor to the windshield to reduce condensation due to the thermal coupling inherent in such a design that would subject the sensor the same temperature that the windshield is subjected to.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is (571) 272-6003. The examiner can normally be reached on MTWRF 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2884

DSB



DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800